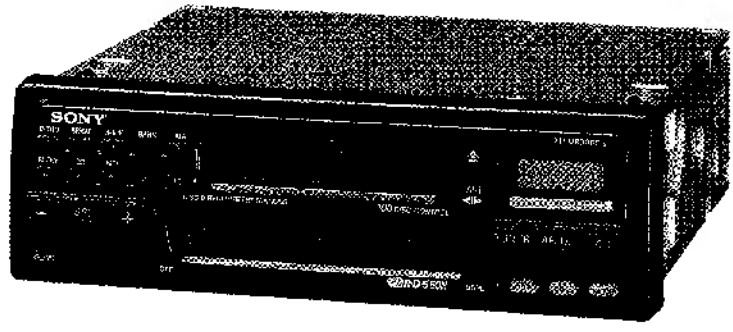
XR-U800RDS

SERVICE MANUAL

AEP Model



• Refer to another service manual RM-X32/X33 for XR-U800RDS supplied remote commander.

Model Name Using Similar Mechanism	NEW
Tape Transport Mechanism Type	MG-55PA-31

SPECIFICATIONS

Cassette player section

Tape track: 4-track 2-channel stereo
Wow and flutter: 0.06% (WRMS)
Frequency response: 30 – 22,000 Hz
Signal-to-noise ratio

Cassette type	Dolby B NR	Dolby C NR	Dolby NR off
TYPE II, IV	67 dB	73 dB	61 dB
TYPE I	64 dB	70 dB	58 dB

Tuner section

FM

Tuning range: 87.5 – 108.0 MHz
Antenna terminal: External antenna connector
Intermediate frequency: 10.7 MHz
Sensitivity: 8 dBf
Selectivity: 75 dB at 400 kHz
Signal-to-noise ratio: 65 dB (stereo), 70 dB (mono)
Harmonic distortion at 1 kHz: 0.5% (stereo), 0.3% (mono)
Separation: 35 dB
Frequency response: 30 – 15,000 Hz

MW/LW (SW, for the German model)

Tuning range: MW: 531 – 1,602 kHz
LW: 153 – 281 kHz (AEP model)
SW: 5,950 – 6,205 kHz (German model)
Antenna terminal: External antenna connector
Intermediate frequency: 10.71 MHz/450 kHz
Sensitivity: MW: 30 µV
LW: 50 µV (AEP model)
SW: 50 µV (German model)

General

Tone controls: Bass ±8 dB at 100 Hz
Treble ±8 dB at 10 kHz
Power requirements: 12 V DC car battery (negative ground)
Dimensions: Approx. 186 × 57 × 163 mm (w/h/d) not incl. projecting parts and controls
Mounting dimension: Approx. 182 × 53 × 146 mm (w/h/d) not incl. projecting parts and controls
Mass: Approx. 1.1 kg
Supplied accessories: Rotary commander (RM-X33) (1)
Mounting hardware (1 set)
Power connecting cord (1)
Front panel case (1)
Optional accessories: Wireless remote commander RM-X36
UNILINK cable (supplied with an RCA pin cord)
RC-61 (1 m), RC-62 (2 m)
RCA pin cord RC-63 (1 m), RC-64 (2 m), RC-65 (5 m)
Optional equipment: CD changer CDX-U606, CDX-U404, CDX-U303, etc.
Source selector XA-U20, XA-U40
Digital pre-amplifier XDP-U50D

Design and specifications subject to change without notice.

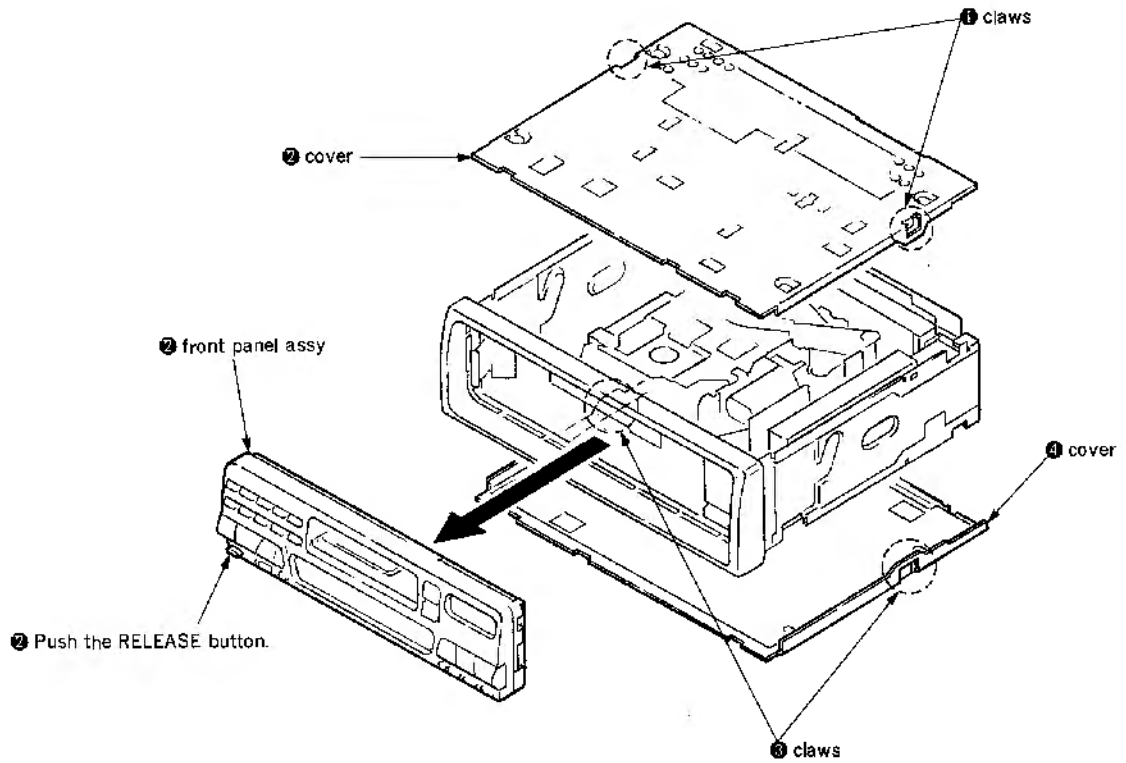
FM/MW/LW(SW) CASSETTE CAR STEREO

SONY®

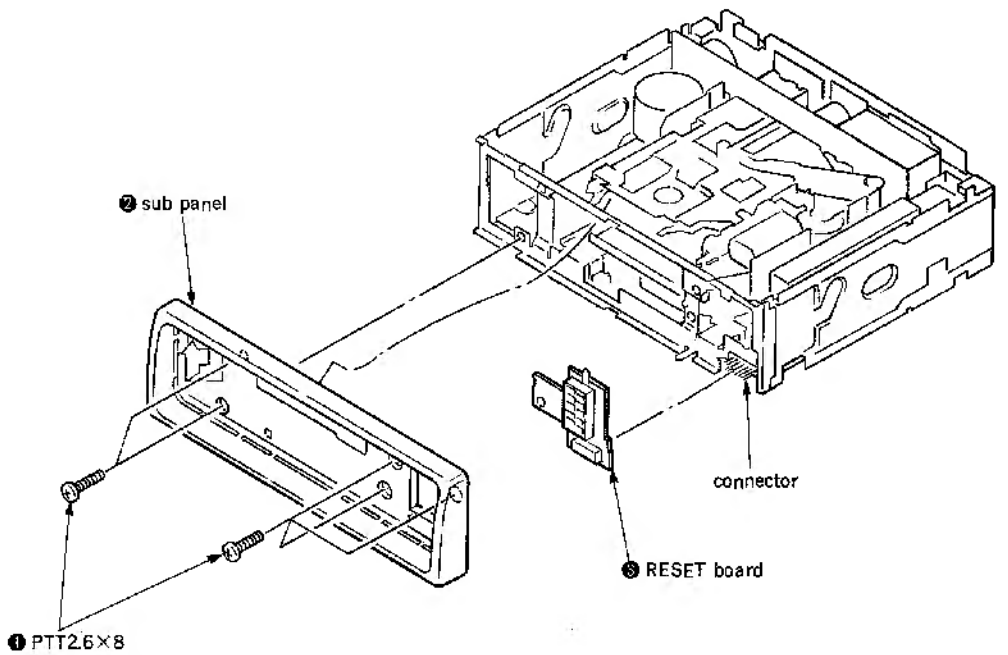
SECTION 2
DISASSEMBLY

Note : Follow the disassembly procedure in the numerical order given.

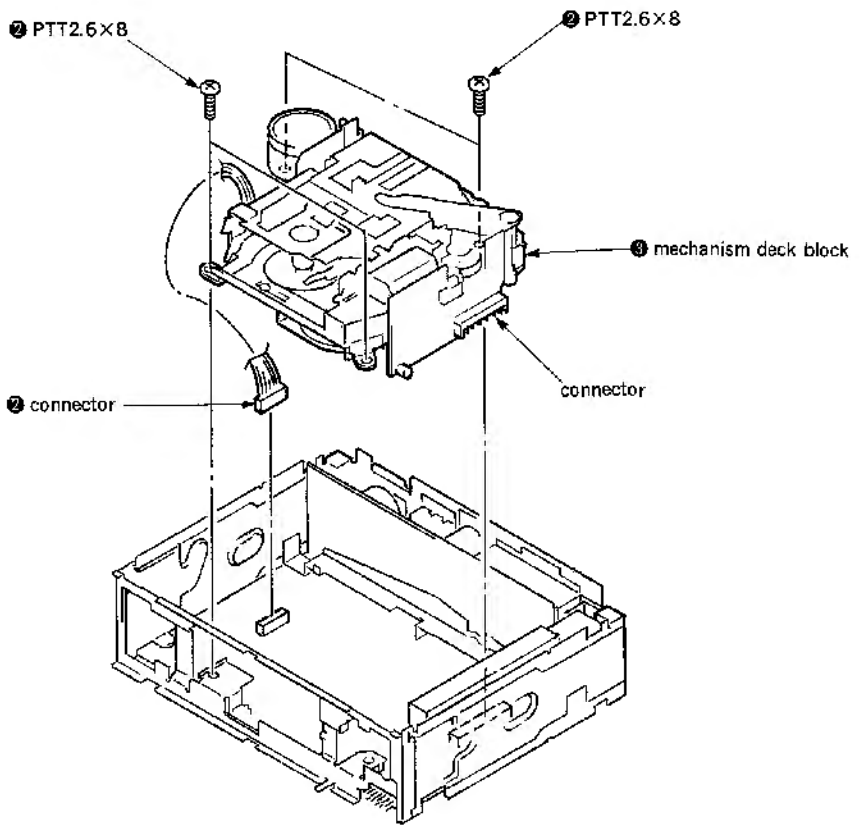
2-1. COVER, FRONT PANEL ASSY



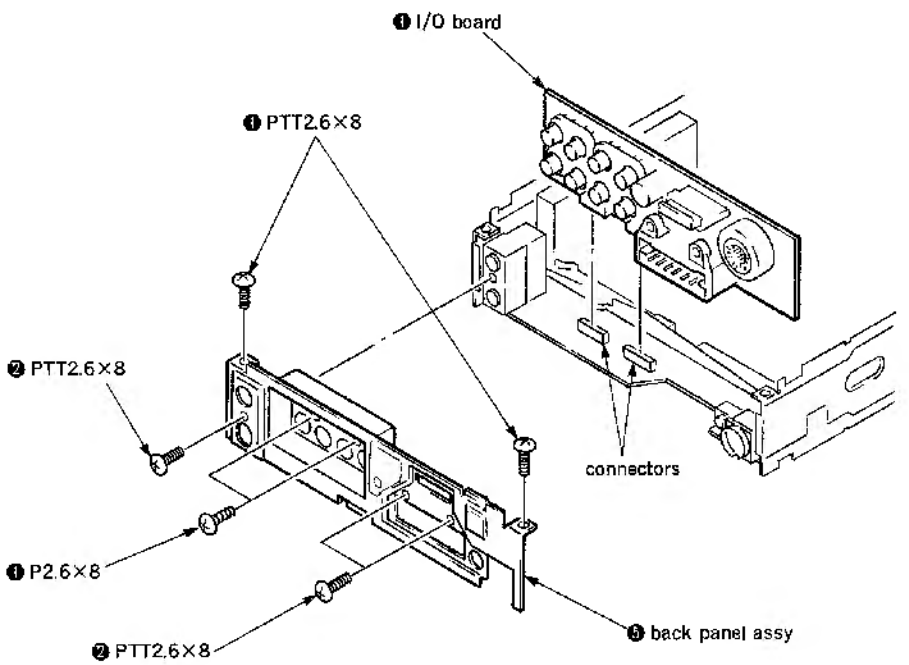
2-2. RESET BOARD



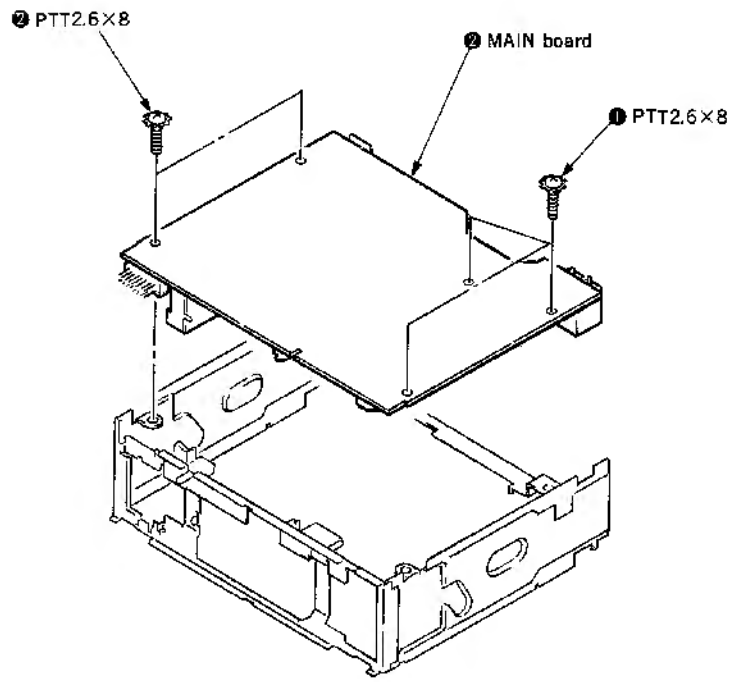
2-3. MECHANISM DECK BLOCK



2-4. I/O BOARD



2-5. MAIN BOARD



SECTION 3
MECHANICAL ADJUSTMENTS

PRECAUTION

1. Wipe the following components with an absorbent cotton cloth moistened with alcohol before adjustment:
   PB head　　Pinch roller
   Idler　　Rubber belt
   Capstan
2. Demagnetize the PB head using a head demagnetizer.
3. Be careful not to use a magnetized screwdriver.
4. After the adjustment is completed, lock the adjustment parts using screws.
5. Unless otherwise specified, make adjustments at the specified voltage (14.4V).

Torque Measurement

Mode	Torque Meter	Meter Reading
FWD	CQ-102C	35−55g•cm (0.49−0.76 oz•inch)
FWD Back Tension		1.5−4.5g•cm (0.02−0.06 oz•inch)
REV	CQ-102RC	35−55g•cm (0.49−0.76 oz•inch)
REV Back Tension		1.5 4.5g•cm (0.02−0.06 oz•inch)
FF, REW	CQ-201B	80−170g•cm (1.11 2.36 oz•inch)

Tape Tension Measurement

Mode	Tension Meter	Meter Reading
FWD	CQ-403A	more than 100g (more than 3.53 oz)
REV	CQ-403R	

SECTION 4
ELECTRICAL ADJUSTMENTS

TEST MODE

This set have the test mode function. In the test mode, FM Auto Scan/Stop Level and AM Auto Scan/Stop Level adjustments can be performed easier than it in ordinaly procedure.

〈Set the Test Mode〉

1. Set the "OFF" mode.
2. Push the preset [4] button.
3. Push the preset [5] button.
4. Press the preset [1] button for two seconds.
5. Then the display indicates five patterns and stops, the test mode is set.

〈Rerease the Test mode〉

1. Push the "OFF" button.

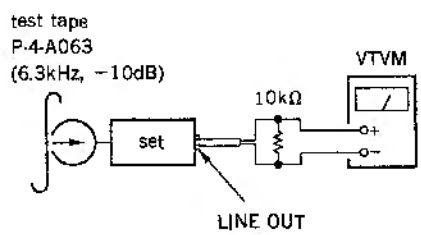
See the adjustment location from on page 28 for the adjustment.

DECK SECTION 0dB=0.775V

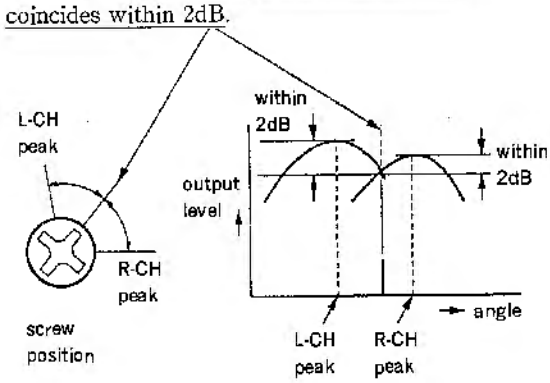
PB Head Azimuth Adjustment

Procedure :

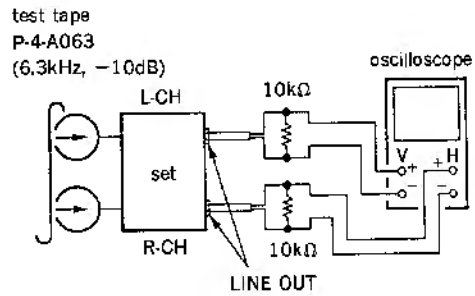
1. Put the set into the FWD PB mode.

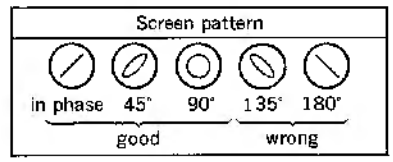


2. Turn the screw and check the output peak value. Adjust the screw so that the peak value in channels L and R coincides within 2dB.



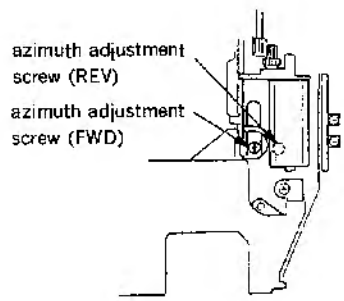
3. Check the phase in the PB mode.





4. Repeat the above adjustment for the REV PB mode.

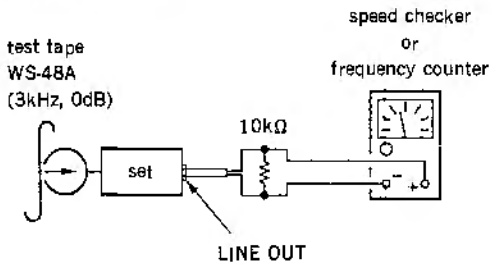
Adjustment Location : PB head



Capstan Motor Tape Speed Adjustment

Procedure :

1. Put the set into the FWD PB mode.



Specification : Constant speed

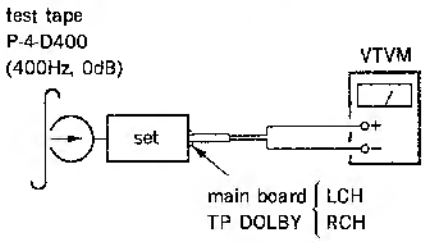
Speed checker	Frequency counter
−1.5 to +2.5%	2,955 to 3,075Hz

Adjustment Location : capstan motor volume

DOLBY Level Adjustment

Setting :

(Dolby NR) button : OFF
SEL (volume) button : Maximum
SEL (balance) button : Center
SEL (bass) button : Center
SEL (treble) button : Center



Procedure :

1. Put the set into the FWD PB mode.
2. Adjust RV301 (L-CH) and RV401 (R-CH) so that VTVM reading is $-4.7^{+1.0}_{-0}$ dB (0.45 to 0.51V).

Adjustment Location : equalizer board

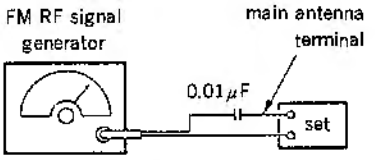
TUNER SECTION | 0dB=1μV

Cautions during repair
When the front end is defective, replace it by a new one because its internal block is difficult to repair.

FM Auto Scan/Stop Level Adjustment

Setting :

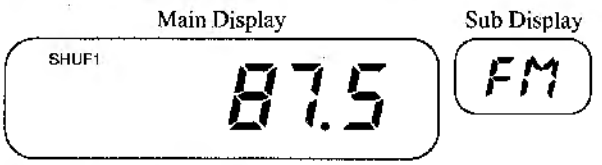
TUNER button : FM



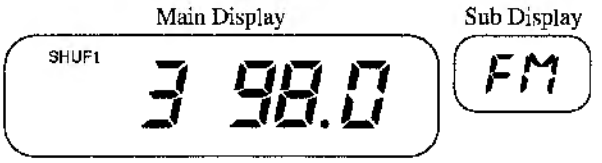
Carrier frequency : 98.0MHz
Output level : 22dB (12.6μV)
Mode : mono
Modulation : no modulation

Procedure :

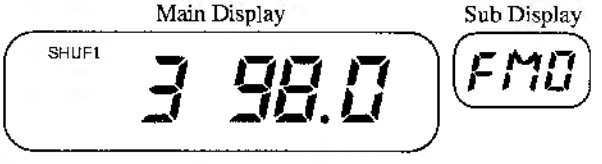
1. Set to the test mode. (See page 24.)
2. Push the TUNER button and set to FM.



3. Push the preset 3 button.



4. Push the SEEK/AMS+▶▶| button.
5. Adjust with the volume RV3 on TU1 so that the "FM" indication turns to "FM0" indication on the sub display window.
   But, in case of already indicated "FM0", turn the RV3 so that put out light "0" indication and adjustment.



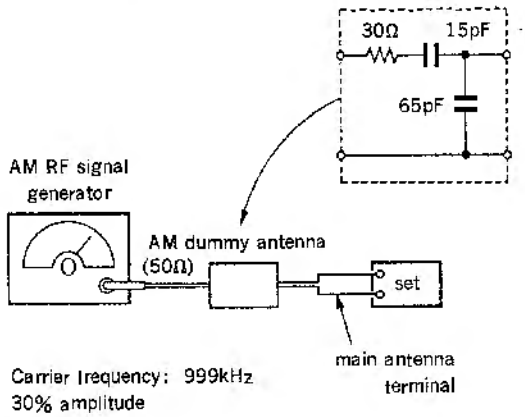
Specification : Stop sensitivity : 22dB±3dB

Note) "0" indication of sub display was align voltage of TP (SD).
TP (SD) voltage 0V →"0" light off
TP (SD) voltage 5V →"0" light on

MW Auto Scan/Stop Level Adjustment

Setting :

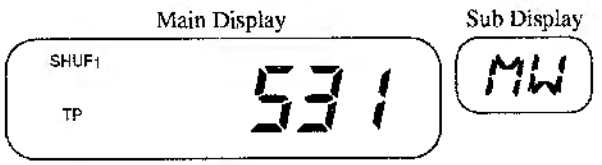
TUNER button : MW



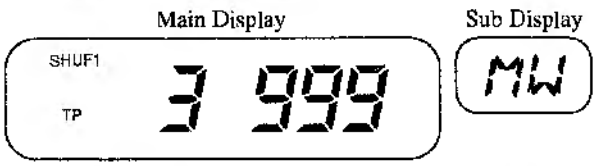
Carrier frequency: 999kHz
30% amplitude modulation by 400Hz signal
Output level : 33dB (44.7μV)

Procedure :

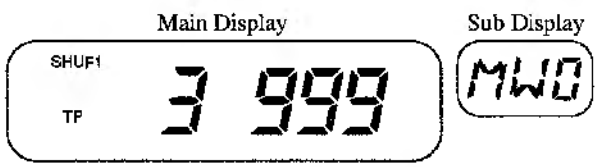
1. Set to the test mode. (See page 24.)
2. Push the [TUNER] button and set to MW.



3. Push the preset [3] button.



4. Adjust with the volume RV1 on TU1 so that the "AM" indication turns to "AM0" indication on the sub display window.
   But, in case of already indicated "AM0", turn the RV1 so that put out light "0" indication and adjustment.



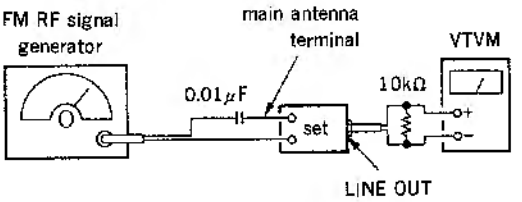
Specification : Stop sensitivity : 33dB±3dB

Note) "0" indication of sub display was align voltage of TP (SD).
TP (SD) voltage 0V →"0" light off
TP (SD) voltage 5V →"0" light on

High Cut Control Effect Adjustment

Setting :

TUNER button : FM



Carrier frequency: 98.0MHz
Output level : 60dB (1mV)
Mode : mono
Modulation : 1kHz, 75kHz deviation

Procedure :

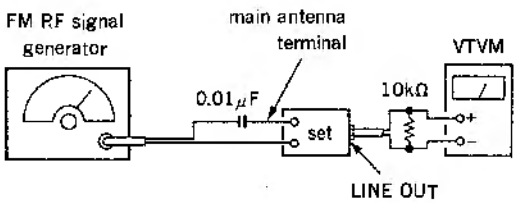
1. Tune the 98.0MHz.
2. The then output level is supposing that (A) dB.
3. Adjust with the volume RV2 on TU1 so that the output level is (A)−6dB then signal generator input set to 20dB.

Adjustment Location : main board (TU1)

FM Noise Focus Adjustment

Setting :

TUNER button : FM



Carrier frequency: 98.0MHz
Output level : 60dB (1mV)
Mode : mono
Modulation : 10kHz, 75kHz deviation

Procedure :

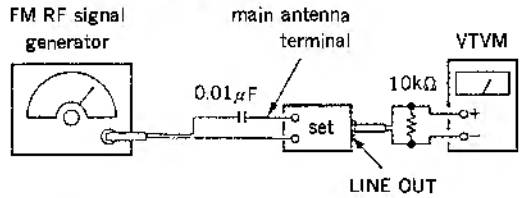
1. Tune the 98.0MHz.
2. The then output level is supposing that (B) dB.
3. Adjust with the volume RV3 on TU1 so that the output level is (B)−30dB then signal generator input set to 20dB.

Adjustment Location : main board (TU1)

FM Stereo Separation (60dB) Adjustment

Setting :

TUNER button : FM



Carrier frequency: 98.0MHz
Output level : 70dB (3.2mV)
Mode : stereo
Modulation : main: 1kHz, 33.75kHz deviation (45%)
sub: 1kHz, 33.75kHz deviation (45%)
19kHz pilot: 7.5kHz deviation (10%)

Procedure :

FM stereo signal generator output channel	VTVM connection	VTVM reading (dB)
L-CH	L-CH	Ⓐ
R-CH	L-CH	Ⓑ Adjust RV4 for minimum reading.
R-CH	R-CH	Ⓒ
L-CH	R-CH	Ⓓ Adjust RV4 for minimum

L-CH Stereo separation : Ⓐ−Ⓑ
R-CH Stereo separation : Ⓒ−Ⓓ
The separations of both channels should be equal.

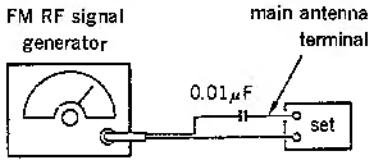
Specification : Separation more than 30dB

Adjustment Location : main board (TU1)

FM Signal Meter Adjustment

Setting :

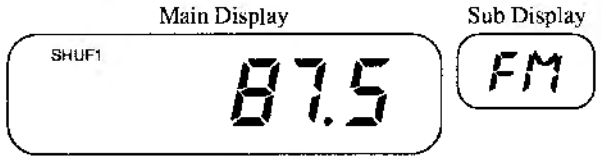
TUNER button : FM



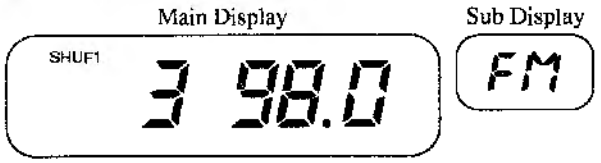
Carrier frequency: 98.0MHz
Output level : 33dB (44.7μV)
Mode : mono
Modulation : no modulation

Procedure :

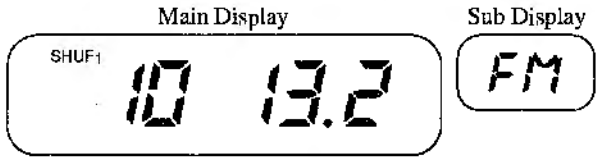
1. Set to the test mode. (See page 24.)
2. Push the TUNER button and set to FM.



3. Push the preset 3 button.

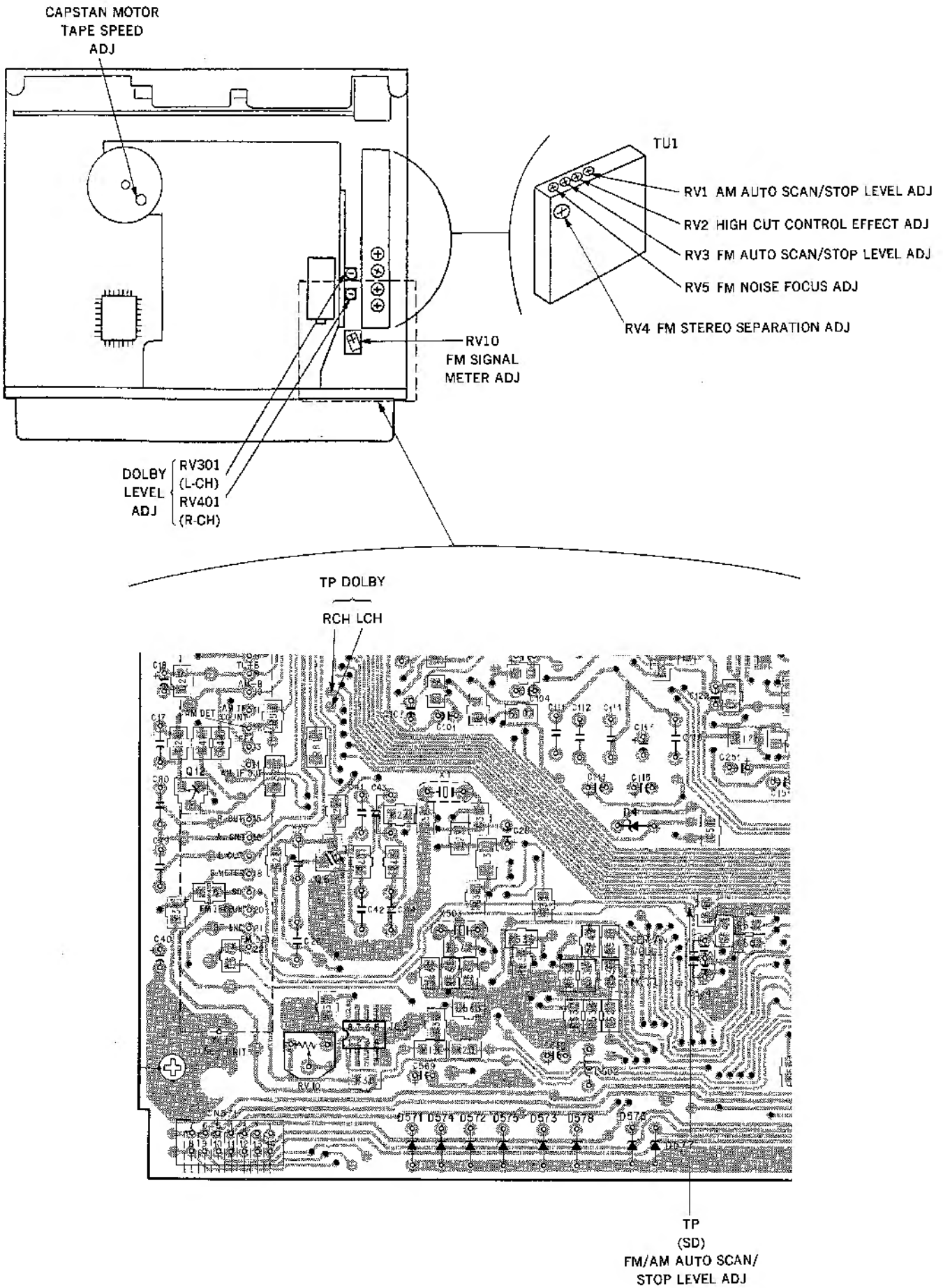


4. Push the 10 button.
5. Adjust RV10 so that the main display indication is "13.2".



Specification : Main display indication : 13.0 to 13.4

Adjustment Location :



SECTION 5
DIAGRAMS

5-1. PIN FUNCTIONS

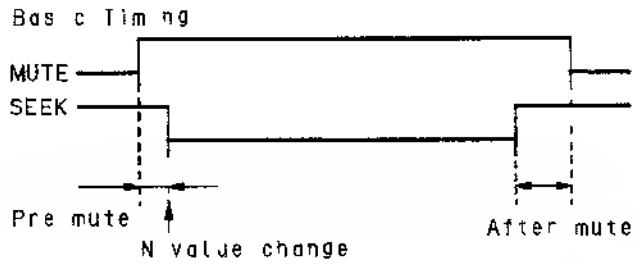
• IC501 μPD75518GF-131-3B9

Pin No.	Signal	Pin Name	I/O	Pin Function
1	KEY-IN0	KI0	I	KEY input
2	P-ON 5V (Ref)	AVDD	—	A/D reference voltage of KEY input.
3, 4	VDD	VDD	—	B/U 5V power
5	KEY-ACTIVE	KEY-ACT	I	ON for A/D port. H : Possible the KEY input.
6	P-ON	P-ON	O	When the POWER ON to output the H. To ON for AUDIO and AMP-REM.
7	ILL-ON	ILL-ON	O	When the ACC ON to output the H. To ON for illumination and LCD.
8	COLOR	COLOR	O	Select the illumination color. H : Green, L : Yellow
9	MUTE	MUTE	O	MUTING output. MUTE ON : H output
10	AUX-MUTE	AUX-MUTE	O	Not use
11	DOLBY $\overline{\text{OFF}}$/ON	DOLBY-$\overline{\text{OFF}}$/ON	O	ON/OFF signal output of DOLBY NR. ON : H, OFF : L
12	DOLBY $\overline{\text{B}}$/C	DOLBY-$\overline{\text{B}}$/C	O	Select signal output of DOLBY NR.
13	SUB-CLK	SUB. VOL-CLK	O	Control output at SUB VOLUME IC102. Control at LCD DRIVER IC701.
14	SUB-DATA	SUB. VOL-DATA	O	
15	SUB-CE	SUB. VOL-CE	O	
16	LCD-INH	LCD-INH	O	
17	—	NC	—	
18	LCD-DATA	LCD-DATA	O	
19	LCD-CLK	LCD-CLK	O	
20	LCD-CD	LCD-CD	O	
21	VOL-CE	VOL-CE	O	Control output at ELECTRONIC VOLUME IC101
22	AMP-ON	AMP-ON	O	Not use
23	VOL-CLK	CLK. OUT-VOL	O	Control output at ELECTRONIC VOLUME IC101
24	VOL-DATA	DATA. OUT-VOL	O	
25	TAPE MUTE	TAPE MUTE	O	When to MUTING for TAPE, output H.
26	METAL	MTL	O	METAL : H, NORMAL : L
27	LM-EJECT	EJECT	O	Control output at LOADING MOTOR. EJECT : H
28	LM-LOAD	LOAD	O	Control output at LOADING MOTOR. LOAD : H
29	POS 3	POS 3	I	TAPE POSITION detection input
30	POS 2	POS 2	I	
31	POS 1	POS 1	I	
32	POS 0	POS 0	I	
33	GND	GND	—	GND
34	REEL2	REEL 2	I	TAPE rotation detection input. Only one side input : Judge the no tape. Both no input : Judge the tape end.
35	REEL1	REEL 1	I	
36	N/$\overline{\text{R}}$	NOR/$\overline{\text{REV}}$	I	DIRECTION signal input of TAPE, H : Forward, L : Reverse
37	$\overline{\text{AMS IN}}$	$\overline{\text{AMS-IN}}$	I	AMS signal input. L : Tape sound is present, H : Tape sound is not present
38	PL-OUT	PL-OUT	O	Plunger drive control output. H : ON
39	CM-OUT	CM-OUT	O	For capstan motor output
40	SUB-VOL SELECT	$\overline{\text{SUB. VOL-SEL}}$	O	Connect to GND.
41	T-POL	ST-IN	—	Normally, fixed L (GND).

Pin No	Signal	Pin Name	I/O	Pin Function
42	SYSTEM RESET	SYS-RES UNI-L	O	For UNILINK output
43	BUS ON	BUS-ON UNI-L	O	
44	CLK-OUT	CLK OUT	O	
45	BEEP	BEEP	O	Buzzer output
46	ACC-CHECK	ACC-CHECK	I	ACC detection input
47	KEY-ACKIN	KEY-ACK	I	When the this set is sleep mode detect to pressing key
48	—	JOYSTICK-ACK	—	Not use
49	SIRCS IN	SIRCS IN	I	Remote commander signal input
50	DATA IN	DATA-IN UNI LINK	I	For UNILINK input output
51	DATA OUT	DATA OUT UNI LINK	O	
52	CLK-IN	CLK-IN UNI-LINK	I	
53	B U-CHECK	B/U-CHECK	I	B+ voltage detection input
54	GND	GND		GND
55, 56	—	XT1, XT2		Not use
57	GND	IC		GND
58	X1	X1	O	Crystal oscillator connect pin (4 19MHz)
59	X2	X2	I	
60	RESET	RESET IN	I	Microcomputer RESET input
61	ANT ON	ANT-REM	—	Not use
62 64			—	Not use
65		SD-IN	—	Fix the L (GND)
66	—	TEL. MUTE	—	Telephone call detect pin H · Mute 20dB audio signal
67	—	CAUTION-SEL		Fix the L (GND)
68	—	NOSE SW		Nose presence detection pin
69 70		MODE1 MODE2		Not use
71	AUDIO SEL 1	AUD SEL. 1		
72	AUDIO SEL 2	AUD. SEL. 0		
73	A D GND	ANALOG GND	—	GND
74	EQ ON	EQ ON	O	EQ control output H · SUB and FAD control, L No output
75	POWER SELECT	P SEL-SW	I	P SEL input L · P-SEL OFF setting (to cope with cars without accessory position)
76	Joistick IN2	JOYSTICK-IN2	I	Rotary commander input
77	Joistick-IN1	JOYSTICK IN1	I	Rotary commander input
78	DSP	DSP	I	DSP control select input L · Use
79	TV	TV	I	TV control select input L . Use
80	KEY IN1	KI1	I	KEY input

• **IC502 MN1882417SNU1**

Pin No.	Signal	Pin Name	I O	Pin Function
1 6	P55 P50	RAM-A05 RAM-A00	O	S-RAM ADDRESS CONTROL output pins which connect with ADDRESS input pins of IC504 S-RAM LH5116N3
7	VDD	VDD	I	Power input pin
8	OSC1	X1		Oscillator connecting pin (8MHz)
9	OSC2	X2	—	
10	VSS	GND		GND pin
11	XI	XTI	I	Not used (GND)
12	XO	XTO	O	Not used (OPEN)
13	EX2	EX2		Connected to GND
14	RST	RESET	I	Reset input pin for input of RESET ANDed with SYSTEM RESET
15	P26	RDS CLK	I	RDS-CLK input pin which connects with CLK-OUT of IC506 RDS decoder TDA7330BD
16	P25	BU-CHECK	I	Input pin to detect BACK-UP detection, used for interrupt.
17	P24	BUS ON	I	BUS INTERFACE bus ON input pin to detect ON OFF of the bus, used for interrupt.
21 28	P77 P70	RAM-D7 RAM-D0	I O	S-RAM DATA BUS input, output pins which connect with DATA pins of IC504 S RAM LH5116N3
26	P47	RAM-RE	O	S-RAM READ ENABLE output pin which connects with OE pin of IC504 S-RAM LH5116N3
27	P46	RAM WE	O	S-RAM WRITE ENABLE output pin which connects with WE pin of IC504 S RAM LH5116N3.
28	P45	TERM		Not used (OPEN).
29	P44	R W		
30	P95	RDS-DATA	I	RDS DATA input pin which connects with DATA output pin of IC506 RDS decoder, TDA7330BD.
31	P94	DEV SENS	I	Not used (OPEN)
32 35	P43 P40	S3 S0	O	
36, 37	P22, P21	—	I	Not used (GND).
38	P20	PLL-DI	I	PLL DATA input pin which connects with DATA-OUT pin of IC2 PLL LC7216M.
39	P17	PLL-DO	O	PLL DATA output pin which connects with DATA-IN pin of IC2 PLL LC7216M
40	P16	PLL-CLK	O	PLL CLK output pin which connects with CLK-IN pin of IC2 PLL LC7216M.
41	P15	PLL CE	O	PLL CE output pin which connects with CE-IN pin of IC2 PLL LC7216M
42	P14	REQUEST	O	BUS INTERFACE REQUEST pin which sends "H" signal for request to communicate.
43	P13	LINK-OFF	O	BUS INTERFACE INT-LINK pin which is set "H" during LINK-OFF and "L" when the bus is connected
44	P12	SCK	I	BUS INTERFACE CLK IN pin
45	P11	SI	I	BUS INTERFACE DATA-IN pin
46	P10	SO	O	BUS INTERFACE DATA-OUT pin
47	VDD	VDD	—	Power pin
48	AVDD	AVDD	—	AD input port power pin which is shorted with pin ㊼, VDD.

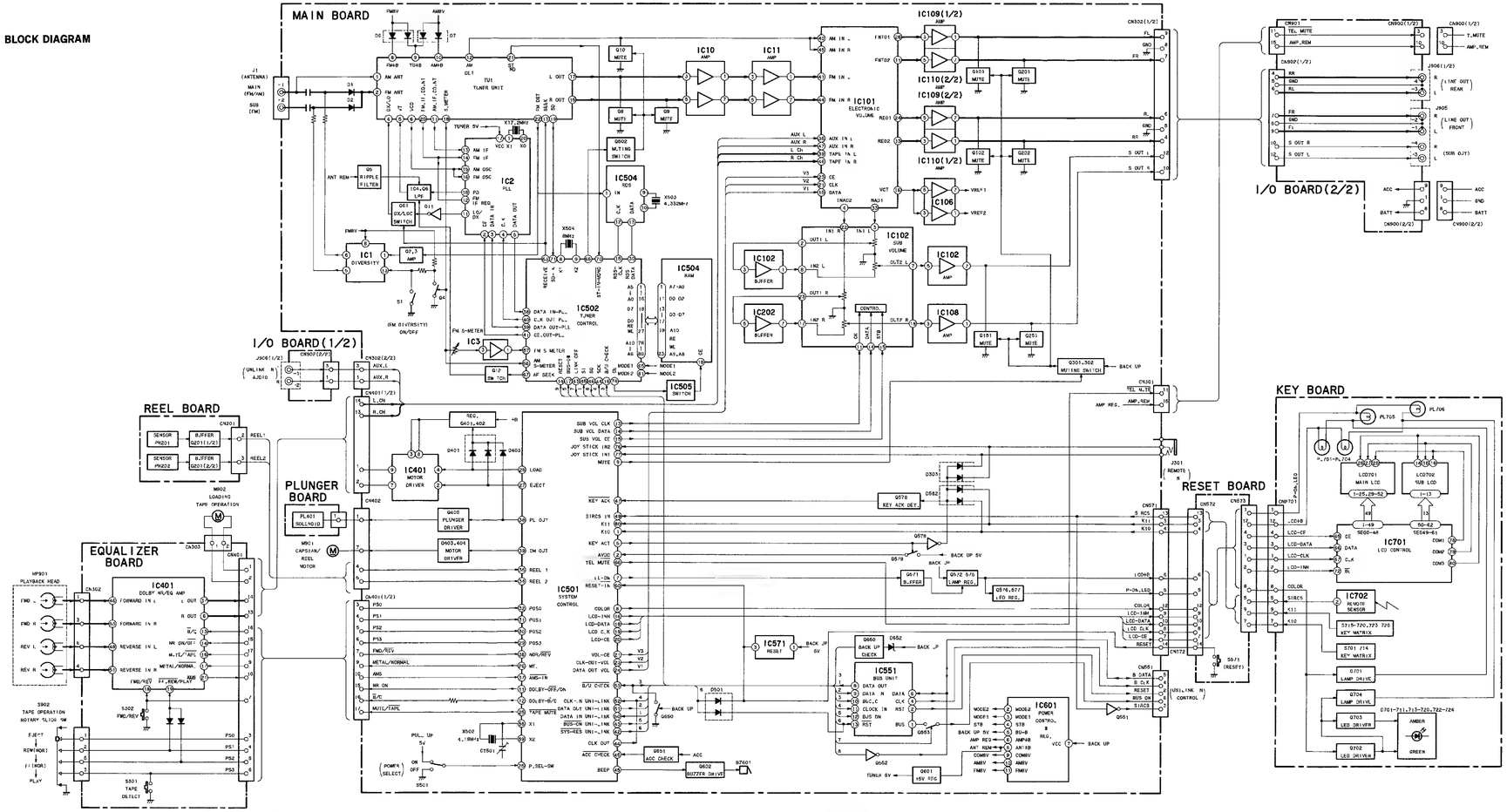
<table>
<tr><th>Pin No</th><th>Signal</th><th>Pin Name</th><th>I O</th><th>Pin Function</th></tr>
<tr><td>49</td><td>VREF</td><td>VREF +</td><td>I</td><td>AD port reference voltage input (positive side) which is supplied from AVREF of MASTER micro computer</td></tr>
<tr><td>50 53</td><td>AD7 AD4</td><td>—</td><td>—</td><td>Not used (GND)</td></tr>
<tr><td>54
55</td><td>AD3
AD2</td><td>DIST SEL1
DIST-SEL0</td><td>I
I</td><td>MODE select input used for setting of band selection. read when the port is reset
<table>
<tr><th>SEL1</th><th>SEL1</th><th>BAND</th></tr>
<tr><td>L</td><td>L</td><td>FM + MW + LW</td></tr>
<tr><td>L</td><td>H</td><td>FM + MW + SW</td></tr>
<tr><td>H</td><td>L</td><td>FM + AM</td></tr>
<tr><td>H</td><td>H</td><td>FM + AM</td></tr>
</table></td></tr>
<tr><td>56</td><td>AD1</td><td>AM VSM</td><td>I</td><td rowspan="2">AM (MW, SW, LW) FM S meter voltage detection pins, used for BTM and RDS (AF NETWORK) functions.</td></tr>
<tr><td>57</td><td>AD0</td><td>FM-VSM</td><td>I</td></tr>
<tr><td>58</td><td>VREF</td><td>VREF</td><td>—</td><td>AD port reference voltage input (negative side).</td></tr>
<tr><td>59</td><td>AVSS</td><td>AVSS</td><td>—</td><td>AD input port GND pin which is shorted with pin ㊽ VREF</td></tr>
<tr><td>60</td><td>VSS</td><td>GND</td><td>—</td><td>Power GND</td></tr>
<tr><td>61</td><td>P37</td><td>TUNER ON</td><td>O</td><td>TUNER-ON output pin which sends "H" signal while tuner is ON.</td></tr>
<tr><td>62</td><td>P36</td><td>DX LO</td><td>O</td><td>Not used (OPEN).</td></tr>
<tr><td>63</td><td>P35</td><td>RECEIVE</td><td>O</td><td>SEEK OUT output pin (RECEIVE)
Also used for SEEK for AM (MW, LW, SW) STOP REQUEST (IF count output request) and AGC cut in BTM mode In FM mode, this pin is used for SEEK. BTM and AF operation network search , EON TA search, CX1X retrieval and PTY search and it is used to change the time constant of S meter output. It is active "L", "H" during receive and "L" when the tuner is turned OFF

</td></tr>
<tr><td>64</td><td>P34</td><td>AM ON</td><td>O</td><td>Not used (OPEN)</td></tr>
<tr><td>65</td><td>P33</td><td>FM-ON</td><td>O</td><td>FM-ON output pin which sends "H" signal in FM mode (for both PLAYING and BIHIND)</td></tr>
<tr><td>66</td><td>P32</td><td>TUNER-MUTE</td><td>O</td><td>Mute output pin</td></tr>
<tr><td>67</td><td>P31</td><td>AF-SEEK</td><td>O</td><td>AF SEEK output pin
This pin is used for FM band AF operation network search, EON TA search, CX1X retrieval, and PTY search and it is used to change the time constant of low pass filter. It is active "H" and set "L" when the tuner is turned OFF in AM mode</td></tr>
<tr><td>68</td><td>P30</td><td>SRAM</td><td>O</td><td>External S-RAM control output pin which sends "H" signal in CPU operations.</td></tr>
<tr><td>69</td><td>P67</td><td>A15</td><td>O</td><td>Not used (OPEN).</td></tr>
<tr><td>70</td><td>P93</td><td>ST-IN-$\overline{\text{MONO}}$</td><td>I O</td><td>Pin used for both ST IND display input and forced MONO output "L" input to this pin will turn stereo display ON It provides "L" output for forced Monaural output.</td></tr>
</table>

Pin No	Signal	Pin Name	I/O	Pin Function
71	P92	SD-IN	I	Used to determine the stop level of SEEK, AUTO-MEMORY, SCAN, etc.
72, 73	P66, P65	A14 A15	O	Not used (OPEN).
74	P64	RAM CE	O	Connected to CE pin of IC504 S-RAM LH5116N3
75	P63			Not used (OPEN).
76 78	P62—P60	RAM A10 RAM-A08	O	S-RAM ADDRESS CONTROL output pins.
79, 80	P57, P56	RAM A07—RAM-A06	O	Connected to ADDRESS pins of IC504 S-RAM LH5116N3.

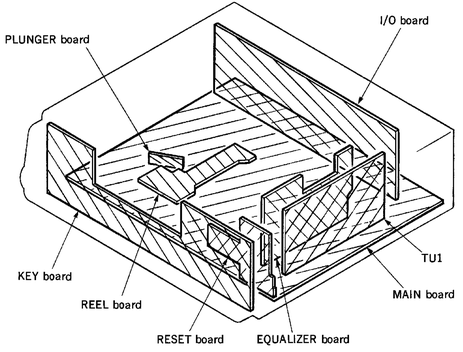
• IC2 LC7216M

Pin No	Signal	Pin Name	I O	Pin Function
1	XIN	XIN	I	Crystal oscillator connecting pin (7 2MHz)
2	CE	CE	I	Chip Enable input pin which connects with PLL-CE of IC502 tuner microcomputer, MN1882417.
3	DI	DATAIN	I	Data input pin which connects with PLL-DO of IC502 tuner microcomputer, MN1882417.
4	CL	CLK	I	Clock input pin which connects with PLL-CLK of IC502 tuner microcomputer, MN1882417.
5	DO	DATAOUT	O	Data output pin which connects with PLL-DI of IC502 tuner microcomputer, MN1882417.
6 10				Not used (OPEN).
11	OUT4	DX/$\overline{LO}$	O	DX $\overline{LO}$ changeover output pin which sends "L" signal for LOCAL mode.
12	OUT5	FM IF-REQ	O	FM IF COUNT request output pin This pin sends "H' signal when IF count of FM band is performed. It provides "H" output only for operations that require IF count, such as SEEK and BTM. It provides "L" output in AM mode and for TUNER OFF.
13	LCTR	AM-IF $\overline{MONO}$	I	General purpose counter frequency measuring signal input pin. SC 0, SF -1, AM IF counter 15 to 500kHz.
14	HCTR	FM IF	I	General purpose counter frequency measuring signal input pin SC—1, FM IF count 10 to 60MHz.
15	AMIN	AM-OSC	I	AM OSC signal input pin DV=0, 2 40MHz SP 1. 0 5 10MHz : SP 0.
16	FMIN	FM OSC	I	FM OSC signal input pin. DV=0, 10 130MHz
17	VCC	VCC		Power pin
18	PD	PD	O	Charge pump output pin
19	VSS	VSS		GND pin
20	XOUT	XOUT	O	Crystal oscillator connecting pin (7.2MHz)

5-2. BLOCK DIAGRAM



5-3. CIRCUIT BOARDS LOCATION



5-4. PRINTED WIRING BOARDS —MAIN SECTION— • Refer to page 57 for Semiconductor Lead Layouts.

• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D1	C-14	IC107	E-5
D2	C-14	IC108	E-6
D3	D-20	IC109	E-7
D4	F-17	IC110	D-7
D6	D-14	IC401	D-3
D7	D-14	(IC401)	J-8
D101	C-18	IC501	G-4
D250	E-10	IC502	G-6
(D301)	J-9	IC504	G-8
D302	F-5	IC505	H-6
(D302)	J-9	IC506	G-9
D303	I-3	IC551	B-3
(D303)	J-10	IC571	F-2
D304	B-6	IC601	B-20
D305	B-21		
D306	B-21	PH201	I-3
D401	E-22	PH202	I-4
D402	D-22		
D403	E-22	Q2	C-10
D404	E-22	Q3	C-10
D405	E-21	Q4	C-10
D501	G-2	Q5	D-5
D502	G-6	Q6	F-14
D551	B-22	Q8	D-9
D552	B-23	Q9	D-10
D553	B-23	Q10	C-9
D554	D-22	Q11	G-10
D555	B-3	Q12	F-13
D556	B-23	Q101	B-8
D570	I-32	Q102	C-8
D571	I-15	Q151	D-6
D572	I-15	Q201	C-9
D573	I-16	(Q201)	J-4
D574	I-15	Q202	C-9
D575	I-16	Q231	D-6
D576	I-17	Q301	C-6
D577	I-17	Q302	C-6
D578	I-16	Q401	D-3
D580	B-16	Q402	D-3
D582	H-7	Q403	D-2
D583	C-3	Q404	E-2
D584	C-3	Q405	E-3
D601	D-20	Q502	F-8
D602	D-20	Q551	G-2
D651	D-3	Q552	G-3
D652	C-22	Q553	B-3
D653	D-21	Q571	B-8
D901	B-27	Q572	A-8
D931	F-28	Q573	A-8
		Q574	A-9
IC1	C-10	Q575	B-10
IC2	F-9	Q576	G-5
IC3	H-15	Q577	I-5
IC4	F-9	Q578	H-5
IC10	D-9	Q579	H-5
IC11	D-9	Q601	E-4
IC101	D-8	Q602	H-22
IC102	E-6	Q650	C-22
IC106	D-18	Q651	F-3

( ): MECHANISM BLOCK

Note:
- ○——: parts extracted from the component side.
- ●: Through hole.
- : Pattern on the side which is seen.
- : Pattern of the rear side

[MAIN BOARD](SIDE A)

[MAIN BOARD](SIDE B)

[I/O BOARD](SIDE A)

[I/O BOARD](SIDE B)

[REEL BOARD]

[EQUALIZER BOARD]

[PLUNGER BOARD]

[RESET BOARD] (SIDE A)

[RESET BOARD] (SIDE B)

Note:

- All capacitors are in μF unless otherwise noted. pF: μμF
  50WV or less are not indicated except for electrolytics and tantaliums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- ⚠ : internal component.
- Power voltage is dc 14.4V and fed with regulated dc power supply from BATT and ACC terminals.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  no mark : FM
  ( ): MW
  < >: PB
- Voltages are taken with a VOM (Input Impedance 10M Ω). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope.
  Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM ⇨ : PB

[MAIN BOARD]

[EQUALIZER BOARD]

[REEL BOARD]

[PLUNGER BOARD]

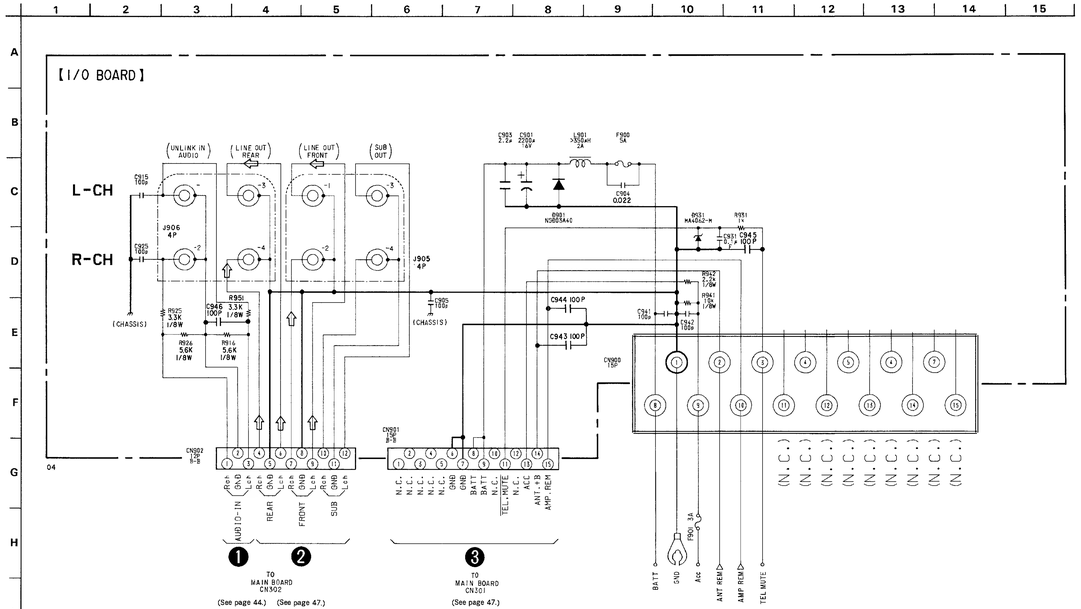
To I/O BOARD CN902 (See page 48.)

To I/O BOARD CN901 (See page 49.)

To I/O BOARD CN902 (See page 48.)

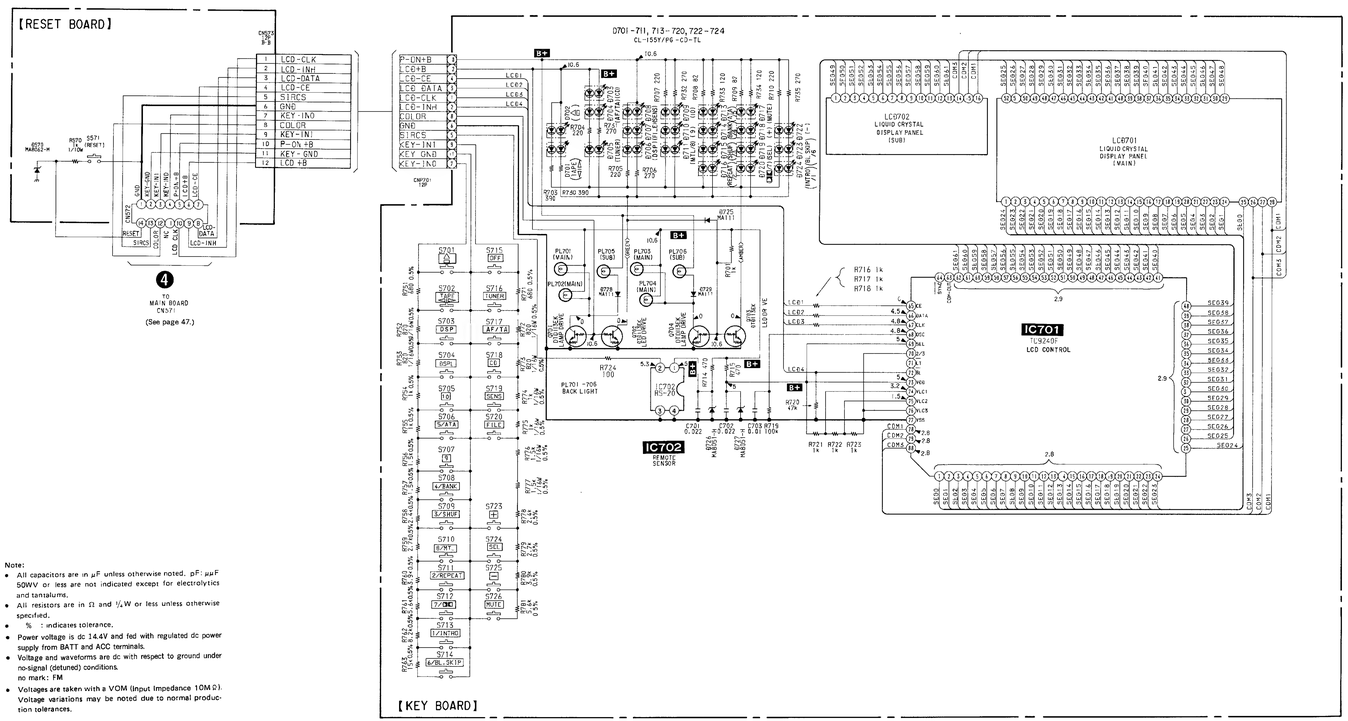
To RESET BOARD CA572 (See page 50.)

5-6. SCHEMATIC DIAGRAM —I/O SECTION—



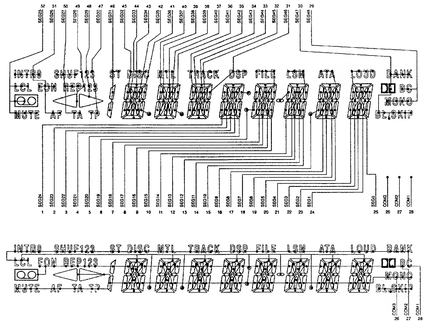
Note:
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantaliums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- Signal path. ⇨ : FM

5-7. SCHEMATIC DIAGRAM —PANEL SECTION—

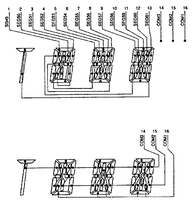


Note:
- All capacitors are in μF unless otherwise noted. pF: μμF 50WV or less are not indicated except for electrolytics and tantaliums.
- All resistors are in Ω and ¼W or less unless otherwise specified.
- % : indicates tolerance.
- Power voltage is dc 14.4V and fed with regulated dc power supply from BATT and ACC terminals.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions. no mark: FM
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.

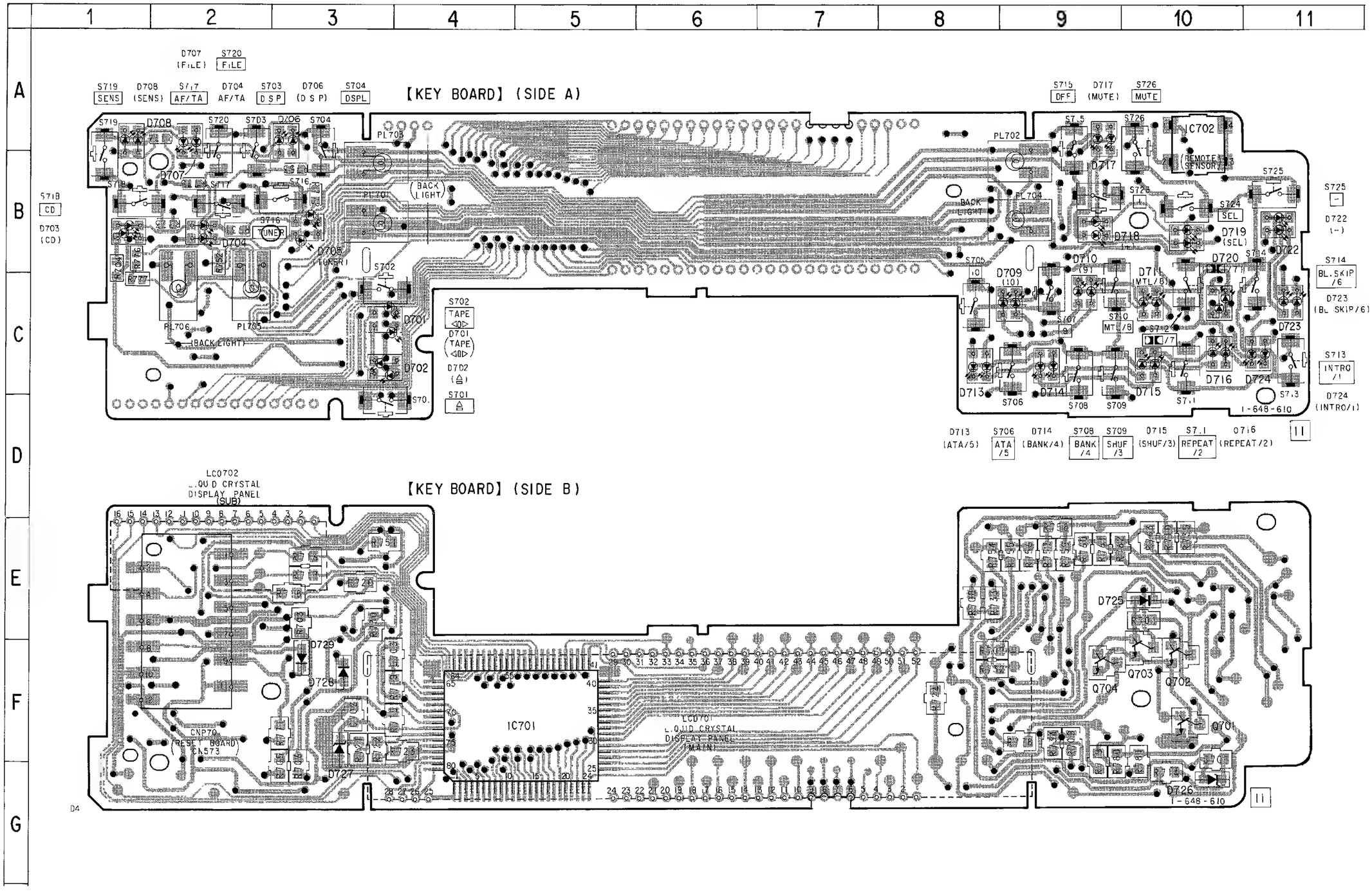
● LCD701 (MAIN)



● LCD702 (SUB)



5-8. PRINTED WIRING BOARD —PANEL SECTION— • Refer to page 57 for Semiconductor Lead Layouts.



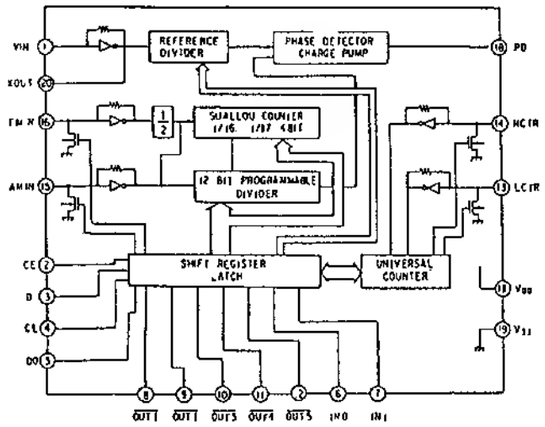
• Semiconductor Location

Ref. No.	Location
D701	C-3
D702	C-3
D703	B-1
D704	B-2
D705	B-3
D706	A-3
D707	A-2
D708	A-1
D709	C-9
D710	C-9
D711	C-10
D713	C-8
D714	C-9
D715	C-10
D716	C-10
D717	A-9
D718	B-9
D719	B-10
D720	C-10
D722	B-11
D723	C-11
D724	C-11
D725	E-10
D726	G-10
D727	F-3
D728	F-3
D729	F-3
IC701	F-5
IC702	A-10
Q701	F-10
Q702	F-10
Q703	F-10
Q704	F-9

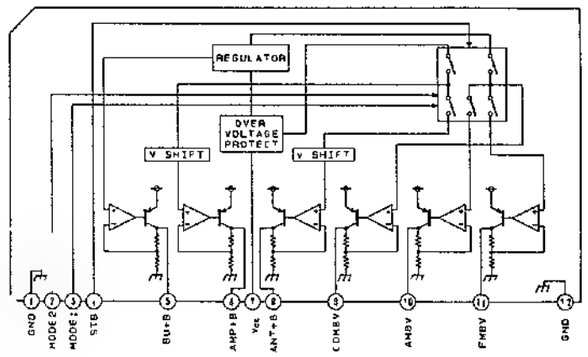
Note:
- o—— : parts extracted from the component side.
- ● : Through hole.
- · : Pattern on the side which is seen.

• IC Block Diagrams

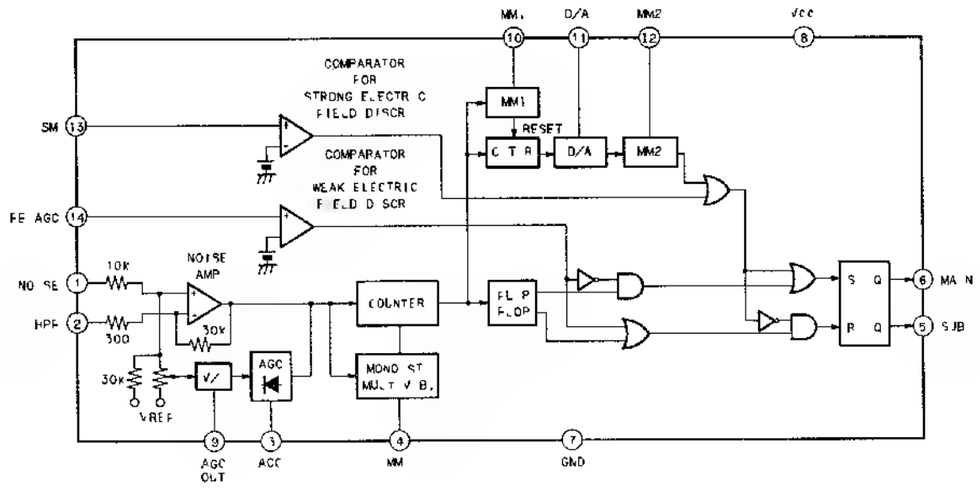
IC2 LC7216M



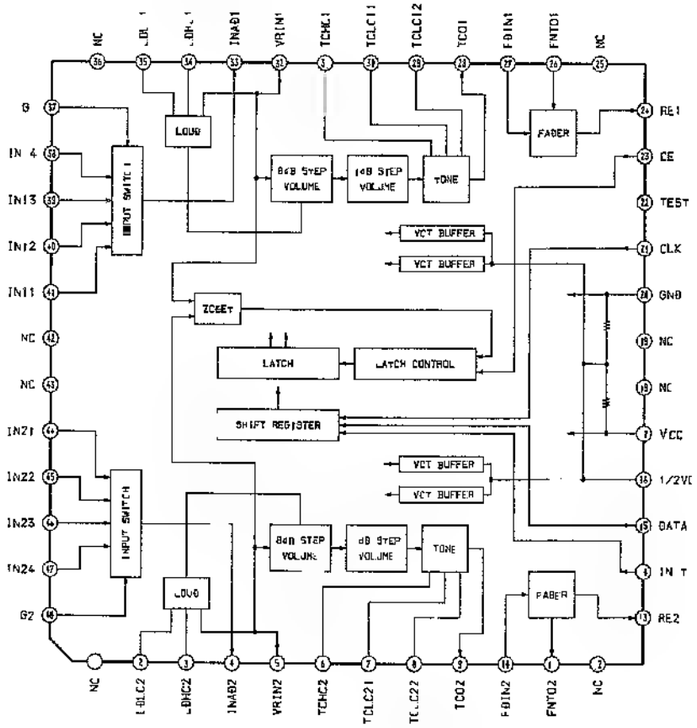
IC601 BA3910A-V2



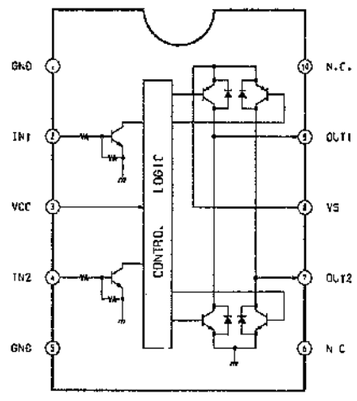
IC1 LA1060



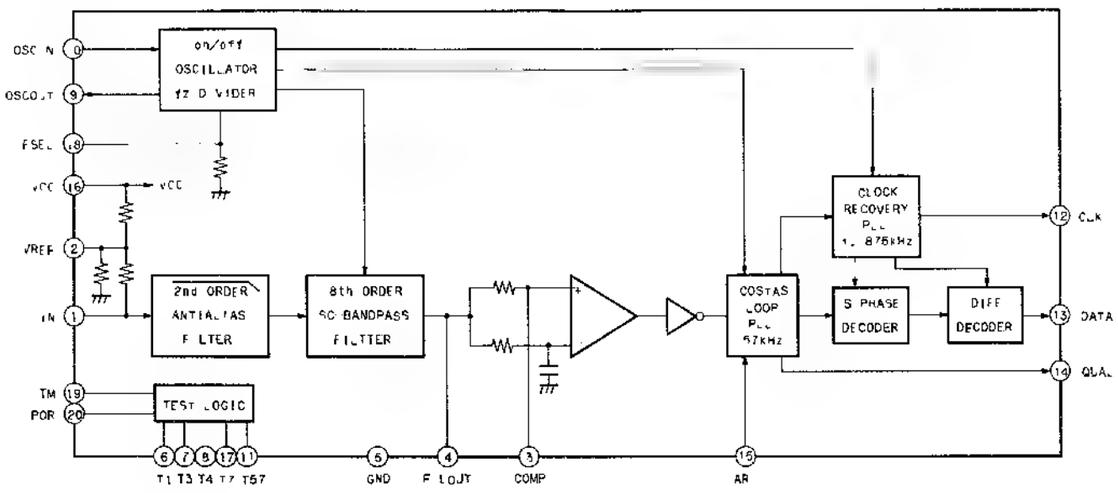
IC101 CXA1646Q



IC401 LB1638M

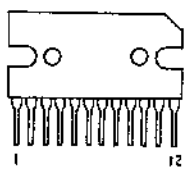


IC506 TDA7330

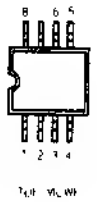


5-9. SEMICONDUCTOR LEAD LAYOUTS

BA3910B-V2

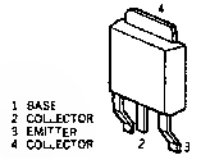


LM358D

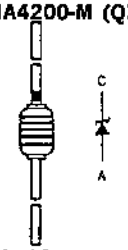


MM1175XF-T1

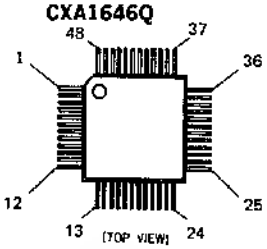
2SD1802-S



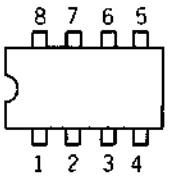
MA4039-M (QZ)
MA4056-M (QZ)
MA4062-M (QZ)
MA4068-L (QZ)
MA4075-M (QZ)
MA4091-H (QZ)
MA4110-M (QZ)
MA4160-M (QZ)
MA4200-M (QZ)



CXA1646Q



NJM5532M



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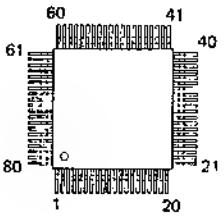

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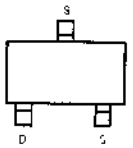

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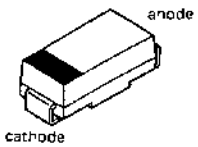

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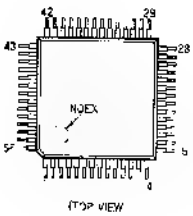

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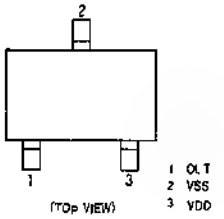

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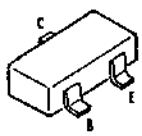
UN2211
UN5111
UN5113
UN5211-TX
2SA1586-YG
2SC2712-YG
2SC4116-GL



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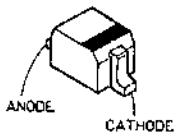
MA8051-H
MA8062-M



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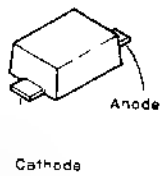

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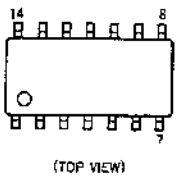

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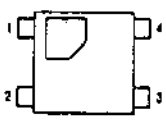

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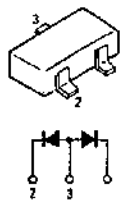

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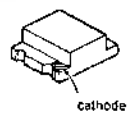

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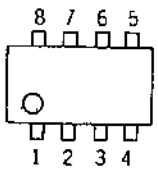

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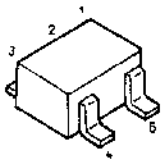

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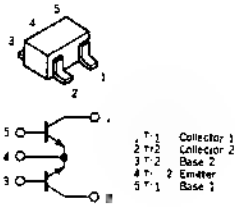
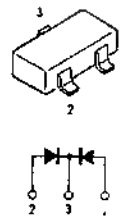
XN1213



MA141WK
MA142WK
MA152WK



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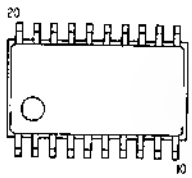

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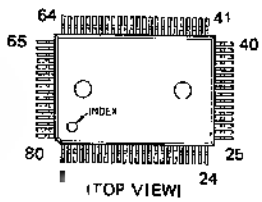

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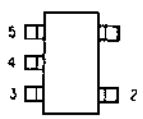

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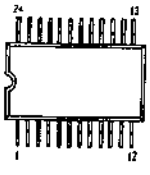

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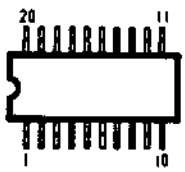

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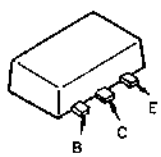


XR-U800RDS

SONY
SERVICE MANUAL

AEP Model

SUPPLEMENT-1

File this supplement with the service manual.

Subject: 1. TUNER MICROCOMPUTER CHANGE
2. PC BOARDS CHANGE

(ECN-CS402702)

1. TUNER MICROCOMPUTER CHANGE

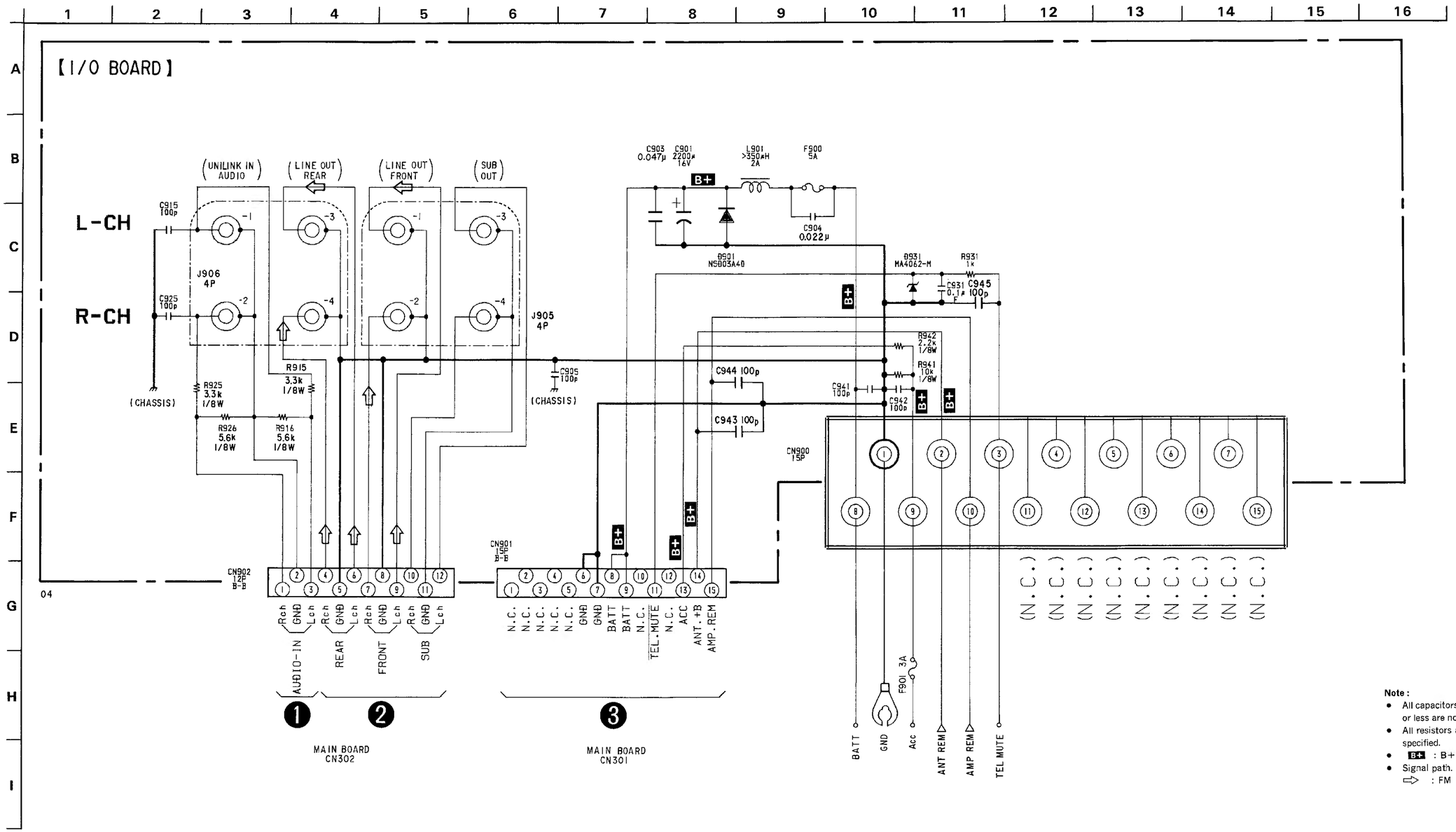
The tuner microcomputer (IC502) has four types.
When servicing/inspecting, check the type of the tuner microcomputer and word according to the following table.

- Types of the Tuner Microcomputer
  TYPE 1 : MN1882417SNU1
  TYPE 2 : MN1882417SNU2
  TYPE 3 : MN1883220SZE
  TYPE 4 : MN1883220SZF

	TYPE 1	TYPE 2	TYPE 3	TYPE 4
R515, 516, 559 RB520—525	MOUNT	NO MOUNT	NO MOUNT	NO MOUNT
C512, 513 FB503 IC504, 505 L502 R532—539	MOUNT	MOUNT	NO MOUNT	NO MOUNT
R544	100kΩ	100kΩ	0Ω	0Ω
C60 (German) Q61 (German)	MOUNT	MOUNT	MOUNT	NO MOUNT

2. PC BOARDS CHANGE

2-1. SCHEMATIC DIAGRAM—I/O SECTION—



Note :

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- B+ : B+ Line
- Signal path.
  ⇨ : FM

• Semiconductor Location

Ref. No.	Location	Ref. No.	Location
D1	C-14	IC108	E-6
D2	C-14	IC109	F-7
D3	D-21	IC110	D-7
D4	G-17	IC401	E-3
D6	D-14	(IC401)	K-9
D7	D-15	IC501	H-4
D101	D-19	IC502	H-7
D250	E-10	IC504	H-8
(D301)	K-10	IC505	I-7
D302	G-5	IC506	H-9
(D302)	K-10	IC551	C-3
D303	I-4	IC571	G-2
(D303)	J-11	IC601	C-21
D304	B-6		
D305	B-22	(PH201)	J-3
D306	B-22	(PH202)	J-5
D401	E-22		
D402	E-23	Q2	D-11
D403	F-22	Q3	D-11
D404	F-22	Q4	D-10
D405	F-22	Q5	E-5
D501	G-3	Q6	G-15
D502	G-6	Q8	D-10
D551	B-22	Q9	D-11
D552	B-23	Q10	D-10
D553	C-23	Q11	G-11
D554	D-24	Q12	F-14
D555	C-3	Q61	D-13
D556	B-23	Q101	C-8
D570	J-33	Q102	C-8
D571	I-15	Q151	D-6
D572	I-16	Q201	C-9
D573	I-17	(Q201)	K-5
D574	I-16	Q202	D-9
D575	I-16	Q251	D-6
D576	I-17	Q301	C-6
D577	I-18	Q302	D-6
D578	I-17	Q401	D-3
D580	B-17	Q402	E-3
D582	I-8	Q403	E-3
D583	D-3	Q404	F-2
D584	D-3	Q405	F-3
D601	D-21	Q502	G-9
D602	D-20	Q551	G-3
D651	D-4	Q552	C-3
D652	D-22	Q553	C-3
D653	D-21	Q571	B-8
D901	C-27	Q572	B-8
D931	F-28	Q573	B-9
		Q574	B-9
IC1	C-11	Q575	B-10
IC2	G-10	Q576	H-5
IC3	H-15	Q577	I-5
IC4	F-9	Q578	H-5
IC10	E-10	Q579	H-5
IC11	E-9	Q601	E-6
IC101	E-8	Q602	I-23
IC102	F-6	Q650	D-22
IC106	E-18	Q651	G-3
IC107	E-6		

( ): MECHANISM BLOCK

Note:

- ○— : parts extracted from the component side.
- ● : Through hole.
- ▒▒▒ : Pattern on the side which is seen.
- ▒▒▒ : Pattern on the rear side.
- TYPE1, 2, 3 and 4 are the types of the tuner microcomputer (IC502).
- Abbreviation
  G : German model

2-2. PRINTED WIRING BOARDS—MAIN SECTION—

[MAIN BOARD] (SIDE A)

[REEL BOARD]

[PLUNGER BOARD]

[EQUALIZER BOARD]

[MAIN BOARD] (SIDE B)

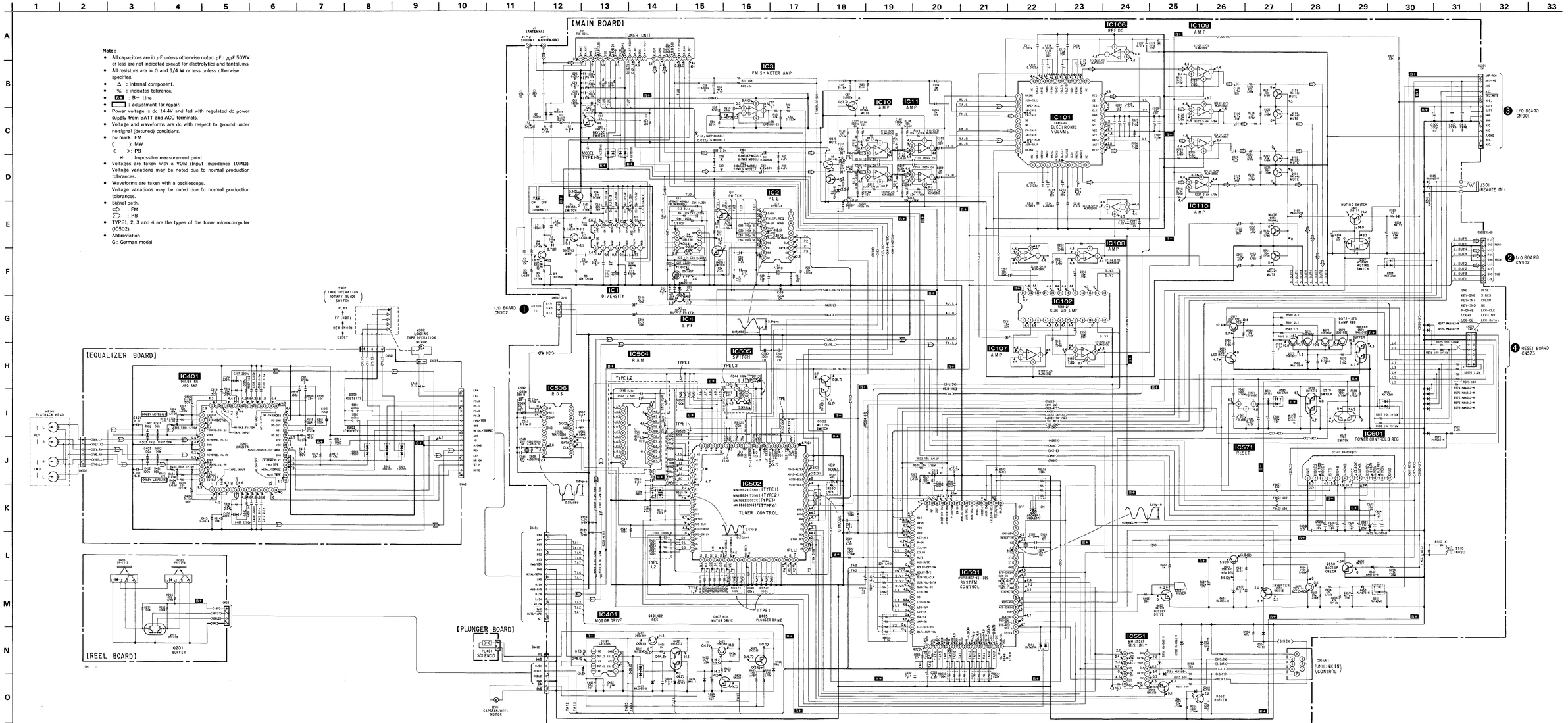
[I/O BOARD] (SIDE A)

[I/O BOARD] (SIDE B)

[RESET BOARD] (SIDE A)

[RESET BOARD] (SIDE B)

2-3. SCHEMATIC DIAGRAM—MAIN SECTION—

Note :

- All capacitors are in μF unless otherwise noted. pF : μμF 50WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : Internal component.
- % : indicates tolerance.
- B+ : B+ Line
- ▭ : adjustment for repair.
- Power voltage is dc 14.4V and fed with regulated dc power supply from BATT and ACC terminals.
- Voltage and waveforms are dc with respect to ground under no-signal (detuned) conditions.
- no mark: FM
  ( ): MW
  < >: PB
  ✱ : Impossible measurement point
- Voltages are taken with a VOM (Input Impedance 10MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : FM
  ⇦ : PB
- TYPE1, 2, 3 and 4 are the types of the tuner microcomputer (IC502).
- Abbreviation
  G : German model